AUTHOR INDEX

AUSTIN, G. See SATO, M., 569
VON BAUMGARTEN, R. See SALMOIRAGHI, G. C., 203

BENDER, M. B. See FELDMAN, S., 350
BERAN, A. V. See MISRAHY, G. A., 159
BERMAN, A. L. Overlap of somatic and auditory cortical response fields in anterior ectosylvian gyrus of cat, 595
——Interaction of cortical responses to somatic and auditory stimuli in anterior ectosylvian gyrus of cat, 608
BRINLEY, F. J., JR. See KANDEL, E. R., 225
BROOKHART, J. M. See SPENCER, W. A., 26, 50
BROOKS, V. B., RUDOMIN, P., and SLAYMAN, C. L. Sensory activation of neurons in the cat's cerebral cortex, 286
——, ——, and ——. Peripheral receptive fields of neurons in the cat's cerebral cortex, 302

CARPENTER, M. B. and CORRELL, J. W. Spinal pathways mediating cerebellar dyskinesia in rhesus monkey, 534
CHOW, K. L. Changes of brain electropotentials during visual discrimination learning in monkey, 377
——. Effect of local electrographic afterdischarges on visual learning and retention in monkey, 391
COHEN, L. A. Role of eye and neck proprioceptive mechanisms in body orientation and motor coordination, 1
CORRELL, J. W. See CARPENTER, M. B., 534
CUNNINGHAM, A. W. B. and RYLANDER, B. J. Behavior of spontaneous potentials from chick cerebellar explant during 120 hours in culture, 141
CURTIS, D. R. and KOIZUMI, K. Chemical transmitter substances in brain stem of cat, 80

DELGADO, J. M. R. See FONBERG, E., 651
DODT, E. and ECHTE, K. Dark and light adaptation in pigmented and white rat as measured by electroretinogram threshold, 427
DOMINO, E. F. See UEKI, S., 12

ECHTE, K. See DODT, E., 427
EIDELBERG, E. Hippocampal "dendritic" responses in rabbits, 521
ERICKSON, R. P., KING, R. L., and PFAFFMANN, C. Some characteristics of transmission through spinal trigeminal nucleus of rat, 621

FELDMAN, S., WAGMAN, I. H., and BENDER, M. B. Anterior brainstem and sciatic nerve connections to vestibular nuclei in cat, 350
FONBERG, E. and DELGADO, J. M. R. Avoidance and alimentary reactions during amygdala stimulation, 651

GARWOOD, V. P. See MISRAHY, G. H., 159
GERNANDT, B. E. and MEGIRIAN, D. Ascending propriospinal mechanisms, 364
—— and SHIMAMURA, M. Mechanisms of interlimb reflexes in cat, 665
GOLDBERG, J. M. and NEFF, W. D. Frequency discrimination after bilateral ablation of cortical auditory areas, 119
GOLDRING, S., O'LEARY, J. L., HOLMES, T. G., and JERVA, M. J. Direct response of isolated cerebral cortex of cat, 633
GRIFFO, Z. J. See HORNBEIN, T. F., 561

HAASE, J. See RUTLEDGE, L. T., 182
—— and VAN DER MEULEN, J. P. Effects of supraspinal stimulation on Renshaw cells belonging to extensor motoneurones, 510
HAGIWARA, S. and KUSANO, K. Synaptic inhibition in giant nerve cell of *Onchidium verruculatum*, 167
HEKMATPANAH, J. Organization of tactile dermatomes, C_1 through L_4, in cat, 129
HOLMES, T. G. See GOLDRING, S., 633
HORNBEIN, T. F., GRIFFO, Z. J., and ROOS, A. Quantitation of chemoreceptor activity: interrelation of hypoxia and hypercapnia, 561
HUTTENLOCHER, P. R. Evoked and spontaneous activity in single units of medial brain stem during natural sleep and waking, 451

ISAMAT, F. Galvanic skin responses from stimulation of limbic cortex, 176

JABBUR, S. J. See TOWE, A. L., 488
—— and TOWE, A. L. Cortical excitation of neurons in dorsal column nuclei of cat, including an analysis of pathways, 499
JERVA, M. J. See GOLDRING, S., 633

KANDEL, E. R. See SPENCER, W. A., 260, 272
—— and SPENCER, W. A. Electrophysiol-

ogy of hippocampal neurons. II. Afterpotentials and repetitive firing, 243
——, —— and BRINLEY, F. J., JR. Electrophysiology of hippocampal neurons. I. Sequential invasion and synaptic organization, 225
KANNO, Y. See MARUYAMA, N., 193
KENNEDY, T. T. See LATIMER, C. N., 66
KING, R. L. See ERICKSON, R. P., 621
KOIZUMI, K. See CURTIS, D. R., 80
KRUGER, L., SIMINOFF, R., and WITKOVSKY, P. Single neuron analysis of dorsal column nuclei and spinal nucleus of trigeminal in cat, 333
KUSANO, K. See HAGIWARA, S., 167

LATIMER, C. N. and KENNEDY, T. T. Cortical unit activity following transcallosal volleys, 66
LOEWENSTEIN, W. R. On the 'specificity' of a sensory receptor, 150

MARUYAMA, N. and KANNO, Y. Experimental study on functional compensation after bilateral removal of auditory cortex in cats, 193
MEGIRIAN, D. See GERNANDT, B. E., 364
MISRAHY, G. A., SPRADLEY, J. F., BERAN, A. V., and GARWOOD, V. P. Acoustic cerebellar pathways in cats, 159
MOTOKAWA, K., YAMASHITA, E., and OGAWA, T. Slow potentials and spike activity of retina, 101

NEFF, W. D. See GOLDBERG, J. M., 119

OGAWA, T. See MOTOKAWA, K., 101
O'LEARY, J. L. See GOLDRING, S., 633
ORIOLI, F. L. Descending limb of brachium conjunctivum in cat. An electrophysiological study, 583

PFAFFMANN, C. See ERICKSON, R. P., 621
PRESTON, J. B. and WHITLOCK, D. G. Intracellular potentials recorded from motoneurons following precentral gyrus stimulation in primate, 91

ROOS, A. See HORNBEIN, T. F., 561
RUDOMIN, P. See BROOKS, V. B., 286, 302
RUTLEDGE, L. T. and HAASE, J. Flexor muscle spindles and reflex firing of early discharging units, 182
RYLANDER, B. J. See CUNNINGHAM, A. W. B., 141

SATO, M. and AUSTIN, G. Intracellular potentials of mammalian dorsal root ganglion cells, 569
SALMOIRAGHI, G. C. and VON BAUMGARTEN, R. Intracellular potentials from respiratory neurones in brain-stem of cat and mechanism of rhythmic respiration, 203
SHIMAMURA, M. See GERNANDT, B. E., 665
SIMINOFF, R. See KRUGER, L., 333
SLAYMAN, C. L. See BROOKS, V. B., 286, 302
SPENCER, W. A. See KANDEL, E. R., 225, 243
—— and BROOKHART, J. M. Electrical patterns of augmenting and recruiting waves in depths of sensorimotor cortex of cat, 26
—— and——. A study of spontaneous spindle waves in sensorimotor cortex of cat, 50
—— and KANDEL, E. R. Electrophysiology of hippocampal neurons. III. Firing level and time constant, 260
—— and ——. Electrophysiology of hippocampal neurons. IV. Fast prepotentials, 272
SPRADLEY, J. F. See MISRAHY, G. A., 159
STAMM, J. S. Electrical stimulation of frontal cortex in monkeys during learning of an alternation task, 414

TOWE, A. L. See JABBUR, S. J., 499
—— and JABBUR, S. J. Cortical inhibition of neurons in dorsal column nuclei of cat, 488

UEKI, S. and DOMINO, E. F. Some evidence for a mechanical receptor in olfactory function, 12

VAN DER MEULEN, J. P. See HAASE, J., 510
VASTOLA, E. F. A direct pathway from internal geniculate body to association cortex, 469

WAGMAN, I. H. See FELDMAN, S., 350
WERNER, G. Antidromic activity in motor nerves and its relation to a generator event in nerve terminals, 401
WHITLOCK, D. G. See PRESTON, J. B., 91
WITKOVSKY, P. See KRUGER, L., 333

YAMASHITA, E. See MOTOKAWA, K., 101

REVIEWS

ADEY, W. R. *Actualités neurophysiologiques*, 2nd series, ed. by P. Laget and A.-M. Monnier, 555
BISHOP, G. H. *Electrophysiological methods in biological methods in biological research*, by J. Bureš, M. Petraň, and J. Zachar, 552

VON BONIN, G. *Medizinische Grundlagenforschung*, Bd. III, ed. by K. Fr. Bauer, 222

BROOKS, C. Mc. *Cerebral anoxia and the electroencephalogram*, ed. by J. S. Meyer and H. Gastaut, 557

——. *Cerebrospinal fluid in health and disease*, by D. Bowsher, 223

——. *The chemistry of brain metabolism in health and disease*, by J. H. Quastel and D. M. J. Quastel, 557

——. *A cytoarchitectonic atlas in the Horsley-Clarke co-ordinate system*. by R. Bleir, 556

——. *Drugs and behavior*, ed. by L. Uhr and J. G. Miller, 447

——. *Electrical activity of single cells*, ed. by Y. Katsuki, 552

——. *Evaluation of drug therapy*, ed. by F. M. Forster, 447

——. Hypothermia and the effects of cold. *Brit. med. Bull.*, vol. 17, no. 1, 331

——. *Illustrations of the nervous system, Atlas III*, by L. Hausman, 556

——. *Lectures on experimental psychiatry*, ed. by H. W. Brosin, 554

——. *The nervous system. An outline of the structure and function of the human nervous system and sense organs*, by G. M. Wyburn, 331

——. *Neural mechanisms of the auditory and vestibular systems*, ed. by G. L. Rasmussen and W. F. Windle, 553

——. *The physiology of emotions*, ed. by A. Simon, 555

——. *Progress in endocrinology, Part I*, ed. by K. Fotherby, J. A. Loraine, J. A. Strong, and P. Eckstein, 446

——. *Rabbit brain research*, vol. 1, by M. Monnier and H. Gangloff, 557

——. *Structure and function of the cerebral cortex*, ed. by D. B. Tower and J. P. Schadé, 446

EVARTS, E. V. *Electrical studies on the unanesthetized brain*, ed. by E. R. Ramey and D. S. O'Doherty, 221

FORD, D. H. *Slice reconstructions of human cerebral section*, by W. J. S. Krieg, 222

GERMAN, W. J. *Einführung in die stereotaktischen Operationen mit einem Atlas des menschlichen Gebirns. Introduction to stereotaxis with an atlas of the human brain*, by G. Schaltenbrand and P. Bailey, 327

GIARMAN, N. J. *The neurochemistry of nucleotides and amino acids*, ed. by R. Brady and D. B. Tower, 117

DE GUTTIEREZ-MAHONEY, C. G. *Selected papers*, by Sir Geoffrey Jefferson, 115

HOOKER, D. *Functional neuro-anatomy, including an atlas of the brain stem*, 4th ed. by A. R. Buchanan, 221

KAPLAN, H. A. *Neuroradiology workshop*. Vol. I: *Scalp, skull and meninges*, by L. M. Davidoff, H. G. Jacobson, and H. M. Zimmerman, 553

NAUTA, W. J. H. *Visual field defects after penetrating missile wounds of the brain*, by H.-L. Teuber *et al.*, 117

ROBINSON, B. W. *Design for a brain*, 2nd ed., by W. R. Ashby, 114

SCHWAB, R. S. *Parkinsonism*, by I. S. Cooper, 448

TOWE, A. L. *Electroencephalography in anesthesiology*, by A. Faulconer, Jr., and R. G. Bickford, 114

VASTOLA, E. F. *Motor examination of peripheral nerve injuries*, by Y. T. Oester and J. H. Mayer, 222

——. *Pathogenesis and treatment of cerebrovascular disease*, ed. by W. S. Fields, 554

WILSON, V. W. *Handbook of physiology, Section 1: Neurophysiology*, vol. III, ed. by J. Field, 329

JOURNAL OF NEUROPHYSIOLOGY

JOURNAL OF NEUROPHYSIOLOGY

[*J. Neurophysiol.*]

VOLUME TWENTY FOUR

1961

CHARLES C THOMAS
SPRINGFIELD, ILLINOIS, U.S.A.

EDITORIAL BOARD

JOHN F. FULTON

FRANK BRINK
JOHN M. BROOKHART
CHANDLER McC. BROOKS
RAGNAR GRANIT
PAUL D. MacLEAN
VERNON B. MOUNTCASTLE
JAMES L. O'LEARY
THEODORE C. RUCH

ASSISTANT EDITOR, MARY P. WHEELER

ADVISORY EDITORS

LORD ADRIAN (Cambridge)
PERCIVAL BAILEY (Chicago)
PHILIP BARD (Baltimore)
G. H. BISHOP (St. Louis)
F. BREMER (Brussels)
DETLEV W. BRONK (New York)
FRITZ BUCHTHAL (Copenhagen)
HSIANG-TUNG CHANG (Shanghai)
STANLEY COBB (Boston)
HALLOWELL DAVIS (St. Louis)
SIR JOHN ECCLES (Canberra)
JOSEPH ERLANGER (St. Louis)
WALLACE O. FENN (Rochester, N. Y.)
A. FESSARD (Paris)
ALEXANDER FORBES (Boston)
H. S. GASSER (New York)
W. R. HESS (Zürich)
MARION HINES (Atlanta)
DAVENPORT HOOKER (New Haven)
YASUJI KATSUKI (Tokyo)
ARISTIDES A. P. LEÃO (Rio de Janeiro)
ROBERT B. LIVINGSTON (Bethesda)
DAVID P. C. LLOYD (New York)
GIUSEPPE MORUZZI (Pisa)
WILDER PENFIELD (Montreal)
H. PIÉRON (Paris)

TABLE OF CONTENTS

NO. 1, JANUARY 1961

Role of eye and neck proprioceptive mechanisms in body orientation and motor coordination. LEONARD A. COHEN 1

Some evidence for a mechanical receptor in olfactory function. SHOWA UEKI AND EDWARD F. DOMINO 12

Electrical patterns of augmenting and recruiting waves in depths of sensorimotor cortex of cat. W. ALDEN SPENCER AND JOHN M. BROOKHART 26

A study of spontaneous spindle waves in sensorimotor cortex of cat. W. ALDEN SPENCER AND JOHN M. BROOKHART 50

Cortical unit activity following transcallosal volleys. CLINTON N. LATIMER AND THELMA T. KENNEDY 66

Chemical transmitter substances in brain stem of cat. DAVID R. CURTIS AND KIYOMI KOIZUMI 80

Intracellular potentials recorded from motoneurons following precentral gyrus stimulation in primate. JAMES B. PRESTON AND DAVID G. WHITLOCK 91

Slow potentials and spike activity of retina. KOITI MOTOKAWA, EIZO YAMASHITA, AND TETSURO OGAWA 101

Announcements 111

Reviews 114

Manuscripts accepted for publication 118

NO. 2, MARCH 1961

Frequency discrimination after bilateral ablation of cortical auditory areas. JAY M. GOLDBERG AND WILLIAM D. NEFF 119

Organization of tactile dermatomes, C_1 through L_4, in cat. JAVAD HEKMATPANAH 129

Behavior of spontaneous potentials from chick cerebellar explant during 120 hours in culture. A. W. B. CUNNINGHAM AND B. J. RYLANDER 141

On the 'specificity' of a sensory receptor. WERNER R. LOEWENSTEIN 150

Acoustic cerebellar pathways in cats. G. A. MISRAHY, J. F. SPRADLEY, A. V. BERAN, AND V. P. GARWOOD 159

Synaptic inhibition in giant nerve cell of *Onchidium verruculatum*. SUSUMU HAGIWARA AND KIYOSHI KUSANO 167

Galvanic skin responses from stimulation of limbic cortex. FABIAN ISAMAT 176

Flexor muscle spindles and reflex firing of early discharging units. L. T. RUTLEDGE AND J. HAASE 182

Experimental study on functional compensation after bilateral removal of auditory cortex in cats. NAOSHIGE MARUYAMA AND YOSHINOBU KANNO 193

Intracellular potentials from respiratory neurones in brain-stem of cat and mechanism of rhythmic respiration. G. C. SALMOIRAGHI AND R. VON BAUMGARTEN ... 203

Announcements 219

Reviews 221

Manuscripts accepted for publication 224

NO. 3, MAY 1961

Electrophysiology of hippocampal neurons. I. Sequential invasion and synaptic organization. E. R. KANDEL, W. A. SPENCER, AND F. J. BRINDLEY, JR. 225

Electrophysiology of hippocampal neurons. II. After-potentials and repetitive firing. E. R. KANDEL AND W. A. SPENCER 243

Electrophysiology of hippocampal neurons. III. Firing level and time constant. W. A. SPENCER AND E. R. KANDEL 260

Electrophysiology of hippocampal neurons. IV. Fast prepotentials. W. A. SPENCER AND E. R. KANDEL 272

Sensory activation of neurons in the cat's cerebral cortex. V. B. BROOKS, P. RUDOMIN, AND C. L. SLAYMAN 286

Peripheral receptive fields of neurons in the cat's cerebral cortex. V. B. BROOKS, P. RUDOMIN, AND C. L. SLAYMAN 302

Announcement 326

Reviews 327

Manuscripts accepted for publication 332

NO. 4, JULY 1961

Single neuron analysis of dorsal column nuclei and spinal nucleus of trigeminal in cat. LAWRENCE KRUGER, ROBERT SIMINOFF, AND PAUL WITKOVSKY 333

Anterior brainstem and sciatic nerve connections to vestibular nuclei in cat. SHAUL FELDMAN, IRVING H. WAGMAN, AND MORRIS B. BENDER 350

Ascending propriospinal mechanisms. BO E. GERNANDT AND DAVID MEGIRIAN 364

Changes of brain electropotentials during visual discrimination learning in monkey. KAO LIANG CHOW 377

Effect of local electrographic after-discharges on visual learning and retention in monkey. KAO LIANG CHOW 391

Antidromic activity in motor nerves and its relation to a generator event in nerve terminals. GERHARD WERNER 401

Electrical stimulation of frontal cortex in monkeys during learning of an alternation task. JOHN S. STAMM 414

Dark and light adaptation in pigmented and white rat as measured by electroretinogram threshold. EBERHARD DODT AND KARSTEN ECHTE 427

Reviews 446

Manuscripts accepted for publication 450

NO. 5, SEPTEMBER 1961

Evoked and spontaneous activity in single units of medial brain stem during natural sleep and waking. PETER R. HUTTENLOCHER 451

A direct pathway from lateral geniculate body to association cortex. E. F. VASTOLA 469

Cortical inhibition of neurons in dorsal column nuclei of cat. A. L. TOWE AND S. J. JABBUR 488

Cortical excitation of neurons in dorsal column nuclei of cat, including an analysis of pathways. S. J. JABBUR AND A. L. TOWE 499

Effects of supraspinal stimulation on Renshaw cells belonging to extensor motoneurones. J. HAASE AND J. P. VAN DER MEULEN 510

Hippocampal "dendritic" responses in rabbits. EDUARDO EIDELBERG 521

Spinal pathways mediating cerebellar dyskinesia in rhesus monkey. MALCOLM B. CARPENTER AND JAMES W. CORRELL 534

Reviews 552

Announcements 558

Manuscripts accepted for publication 559

NO. 6, NOVEMBER 1961

Quantitation of chemoreceptor activity: interrelation of hypoxia and hypercapnia. THOMAS F. HORNBEIN, ZORA J. GRIFFO, AND ALBERT ROOS 561

Intracellular potentials of mammalian dorsal root ganglion cells. MAKOTO SATO AND GEORGE AUSTIN 569

Descending limb of brachium conjunctivum in cat. An electrophysiological study. FERNANDO L. ORIOLI 583

Overlap of somatic and auditory cortical response fields in anterior ectosylvian gyrus of cat. ALVIN L. BERMAN 595

Interaction of cortical responses to somatic and auditory stimuli in anterior ectosylvian gyrus of cat. ALVIN L. BERMAN 608

Some characteristics of transmission through spinal trigeminal nucleus of rat. ROBERT P. ERICKSON, ROBERT L. KING, AND CARL PFAFFMANN 621

Direct response of isolated cerebral cortex of cat. SIDNEY GOLDRING, JAMES L. O'LEARY, THOMAS G. HOLMES, AND MICHAEL J. JERVA 633

Avoidance and alimentary reactions during amygdala stimulation. ELZBIETA FONBERG AND JOSÉ M. R. DELGADO 651

Mechanisms of interlimb reflexes in cat. BO E. GERNANDT AND MUNEO SHIMAMURA 665

Announcements 677

Manuscripts accepted for publication 679

Index 681